Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

# PUBLIC HEALTH REPORTS

VOL. 32 NOVEMBER 30, 1917 No. 48

## VACCINATION AGAINST SMALLPOX.

### THE KIND OF VACCINE TO USE AND HOW TO USE IT.

The United States Public Health Service advises the following procedure in order to secure the best results from vaccination and to prevent possible complications.

### I. The Vaccine.

The freshest possible vaccine should be obtained. All vaccine packages, pending use, should be kept in a metal box in actual contact with ice.

### II. The Vaccination.

Vaccination should never be performed by cross scratching or scarification, but by one of the methods described below. If a prompt "take" is very necessary, as in case of direct exposure to smallpox or if the first attempt has been unsuccessful, three or four applications of the virus should be made, but the insertions should be at least an inch apart. Whichever method is used a control area may be first treated similarly, but without the virus, in order to estimate the amount of pressure necessary for insertion and in order to demonstrate a possible early immune reaction in previously vaccinated individuals.

### Preparation.

The skin of the upper arm, in the region of the depression formed by the insertion of the deltoid muscle, should be thoroughly cleansed with soap and water if not seen to be clean, and in any case with alcohol or ether on sterile gauze.

After evaporation of the alcohol or ether, a drop of the virus should be placed upon the cleansed skin. To expel the virus from a capillary tube, the tube should be pushed through the small rubber bulb which accompanies it, wiped with alcohol, and one end broken off with sterile gauze; the other end may be broken inside the rubber bulb. The hole in the latter should be closed with the finger as the bulb is compressed to expel the virus.

The under surface of the arm is grasped with the vaccinator's left hand so as to stretch the skin where the virus has been placed. The skin is kept thus stretched throughout the process.

### Methods.

(a) *The method of incision, or linear abrasion.*—By means of a sterilized needle or other suitable instrument, held in the right hand, a scratch, not deep enough to draw blood, is made through the drop of virus, one-quarter of an inch long and parallel with the humerus. The virus is then gently rubbed in with the side of the needle or other smooth, sterile instrument. Some blood-tinged serum may ooze through the abrasion as the virus is rubbed in, but this should not be sufficient to wash the virus out of the wound.

(b) *The drill method.*—A sterile drill, such as is used for the von Pirquet cutaneous tuberculin test, shaped like a very small screw driver with a moderately sharp end not more than 2 millimeters wide, is held between the thumb and middle finger, and with a twisting motion and moderately firm pressure, a small circular abrasion, the diameter of the drill, is made through the drop of virus; this should draw no blood.

(c) *The multiple puncture method.*—A sterile needle is held nearly parallel with the skin and the point pressed through the drop of virus so as to make about six oblique pricks or shallow punctures, through the epidermis to the cutis, but not deep enough to draw blood. The punctures should be confined to an area not more than one-eighth of an inch in diameter.

With methods (a) and (b) it is advisable to expose the arm after vaccination to the open air, but not to direct sunlight, for 15 minutes before the clothing is allowed to touch it. With method (c) the virus may be wiped off immediately.

### III. The Vaccination Wound.

1. The original vaccination wound should be made as small as possible, and all injury to the vaccinated arm should be guarded against. Any covering which is tight, or more than temporary, tends to macerate the tissues during the "take." This is to be avoided. No shield or other dressing should be applied at the time of vaccination. Customary bathing and daily washing of the skin may be continued, so long as the crust does not break. The application of moisture to the vaccinated area should not be enough to soften the crust.

If an early reaction of immunity is to be watched for, the patient should report on the first, second, fifth, and seventh days after vaccination. Otherwise, the patient should report on the ninth day, or sooner if the vesicle, pustule or crust breaks. Every effort should be made to prevent such rupture. However, should the vesicle, pustule, or crust break, and the wound thus become open, daily moist dressings with some active antiseptic, such as mercuric chloride or dilute iodine (one part tincture of iodine in nine parts of water) should be applied. Under no circumstances should any dressing be allowed to remain on a vaccination wound longer than 24 hours, and no dressing should be applied so long as the natural protection is intact.

On account of possible fouling by perspiration and to lessen the chance of exposure to street dust, primary vaccination should be performed preferably in cool weather.

In order to encourage proper surgical treatment, no charge should be made for the aftercare of a vaccination nor for revaccination in case the first attempt should prove unsuccessful.

Although apparently trivial, vaccination is an operation which demands skill in performance and care in aftertreatment in order to avoid the rare, but serious, complications. For the prevention of these complications vaccination (*a*) should be performed with strictly aseptic technique, (*b*) should cover the smallest possible area for each insertion, and (*c*) should be treated without any covering which permits maceration.

A child should be vaccinated by the time it has reached the age of 6 months, and the operation should be repeated at about 6 years of age and whenever an epidemic of smallpox is present.

## WINTER OUTBREAK OF POLIOMYELITIS.

### ELKINS, W. VA., 1916-17.

By J. P. LEAKE, Passed Assistant Surgeon; JOSEPH BOLTEN, Passed Assistant Surgeon; and H. F. SMITH, Assistant Surgeon, United States Public Health Service.

Particular attention was attracted to the West Virginia epidemic of poliomyelitis because it occurred in the winter and because it followed so closely the New York epidemic as to be really an extension of that general epidemic. At the time it was thought to be the first winter outbreak in the United States; indeed it was the first to assume anything like epidemic proportions, but a search of the records has revealed other outbreaks in this country during cold weather. Scandinavian observers had called attention to a few winter outbreaks in Sweden and Norway although no definite study had been made of the temperature conditions. A criterion must be adopted as to what constitutes a winter outbreak; the mere months of the year signify very different weather in different parts of the globe. Further, we know that occasional poliomyelitis occurs practically everywhere and in all seasons; these isolated winter cases, however, are unimportant as regards a study of conditions of infection, for it has been known ever since the epidemiologic study of poliomyelitis began that some cases occur apparently without any relation to each other, just as do cases of noninfectious nervous